

## 1. TRANSMITTED DATA

## 1-1 CHANNEL MESSAGES [H]:Hex, [D]:Decimal

Status [H]	Second [H] [D]	Third [H]	Description
8n	kk (kk)	vv	Note Off vv=0~127
9n	kk (kk)	vv	Note On vv=1~127
Bn	00 (00)	mm	Program Bank Select(MSB) [NOTE1]
Bn	06 (06)	dd	Data Entry(MSB) [TABLE1]
Bn	20 (32)	bb	Program Bank Select(LSB) [NOTE1]
Bn	62 (98)	nl	NRPN LSB [TABLE1]
Bn	63 (99)	nm	NRPN MSB [TABLE1]
Cn	pp (pp)	--	Program Change [NOTE1]

n : MIDI Channel (0~15)

vv: Value

## 1-2 SYSTEM COMMON MESSAGES

Status [H]	Second [H]	Third [H]	Description
F2	pp	pp	Song Position Pointer
F3	ss	--	Song Select ss : Song No. = 0~15

This message is transmitted when in Song mode and the "Clock" is set to "INT".

## 1-3 SYSTEM REALTIME MESSAGES

Status[H]	Description
F8	Timing Clock *
FA	Start *
FB	Continue *
FC	Stop *
FE	Active Sensing

\* : This message is transmitted when the "Clock" is set to "INT".

## 1-4 UNIVERSAL SYSTEM EXCLUSIVE MESSAGES

## DEVICE INQUIRY REPLY

Byte[H]	Description
F0	Exclusive Status
7E	Non Realtime Message
0c	MIDI Channel ( Device ID )
06	Inquiry Message
02	Identity reply
42	KORG ID ( Manufacturers ID )
52	EA-1 ID ( Family ID (LSB))
00	( Family ID (MSB))
00	( Member ID (LSB))
00	( Member ID (MSB))
xx	( Minor Ver. (LSB))
xx	( Minor Ver. (MSB))
xx	( Major Ver. (LSB))
xx	( Major Ver. (MSB))
F7	End of Exclusive

This message is transmitted whenever a INQUIRY MESSAGE REQUEST is received.

## 1-5 SYSTEM EXCLUSIVE MESSAGES

Function ID [Hex]		R	D	E
40	CURRENT PATTERN DATA DUMP	○		
58	CURRENT SONG DATA DUMP	○		
4C	ALL PATTERN DATA DUMP	○	○	
57	ALL SONG DATA DUMP	○	○	
50	ALL DATA(PATTERN, SONG, GLOBAL) DUMP	○	○	
26	DATA FORMAT ERROR			○
23	DATA LOAD COMPLETED			○
24	DATA LOAD ERROR			○
21	WRITE COMPLETED			○
22	WRITE ERROR			○

Transmitted when

R : Request message is received

D : Data dump from MIDI dump page

(Doesn't respond to "MIDI Filter E" parameter)

E : Exclusive message is received

## 2.RECOGNIZED RECEIVE DATA

## 2-1 CHANNEL MESSAGES

Status [Hex]	Second [H] [D]	Third [H]	Description	
8n	kk (kk)	vv	Note Off vv=0~127	
9n	kk (kk)	00	Note Off	
9n	kk (kk)	vv	Note On vv=1~127	
Bn	00 (00)	mm	Program Bank Select(MSB)	[NOTE1]
Bn	06 (06)	dd	Data Entry(MSB)	[TABLE1]
Bn	20 (32)	bb	Program Bank Select(LSB)	[NOTE1]
Bn	62 (98)	nl	NRPN LSB	[TABLE1]
Bn	63 (99)	nm	NRPN MSB	[TABLE1]
Bn	79(121)	00	Reset All Controller	
Bn	7A(122)	00/7F	Local Control Off/On	*
Bn	7B(123)	00	All Note Off	
Bn	7C(124)	00	Omni Mode Off	*
Bn	7D(125)	00	Omni Mode On	*
Cn	pp (pp)	--	Program Change	[NOTE1]

n : MIDI Channel No.(0~15)

\* : Receive as All Note Off.

## 2-2 SYSTEM REALTIME MESSAGES

Status[H]	Description	
F8	Timing Clock	*
FA	Start	*
FB	Continue	*
FC	Stop	*
FE	Active Sensing	

\* : This message is recognized when the "Clock" is set to "EXT".

## 2-3 UNIVERSAL SYSTEM EXCLUSIVE MESSAGE (NON REALTIME)

## DEVICE INQUIRY MESSAGE REQUEST

Byte[H]	Description
F0	Exclusive Status
7E	Non Realtime Message
0c	MIDI Channel
06	Inquiry Message

01	Inquiry Request
F7	End of Exclusive

## 2-4 SYSTEM EXCLUSIVE MESSAGE

Function ID [Hex]	Function	D	A
10	CURRENT PATTERN DATA DUMP REQUEST		○
1C	ALL PATTERN DATA DUMP REQUEST		○
0A	CURRENT SONG DATA DUMP REQUEST		○
0B	ALL SONG DATA DUMP REQUEST		○
0F	ALL DATA(PATTERN,SONG,GLOBAL) DUMP REQUEST		○
11	PATTERN WRITE REQUEST		○
1A	SONG WRITE REQUEST		○
40	CURRENT PATTERN DATA DUMP	○	○
4C	ALL PATTERN DATA DUMP	○	○
58	CURRENT SONG DATA DUMP	○	○
57	ALL SONG DATA DUMP	○	○
50	ALL DATA(PATTERN,SONG,GLOBAL) DUMP	○	○

Received when in

D : in MIDI Dump page

(Does not respond to "MIDI Filter E" parameter on MIDI Dump page)

A : any other mode

Received when Sequencer is not running.

## MIDI EXCLUSIVE FORMAT (R:Receive, T:Transmit)

## (1) CURRENT PATTERN DATA DUMP REQUEST R

Byte	Description
F0,42,3c,52	EXCLUSIVE HEADER
0001 0000 (10)	CURRENT PATTERN DATA DUMP REQUEST 10H
1111 0111 (F7)	EOX

When this message is received, the CURRENT PATTERN DUMP(Function:40h) message will be transmitted.

## (2) ALL PATTERN DATA DUMP REQUEST R

Byte	Description
F0,42,3c,52	EXCLUSIVE HEADER
0001 1100 (1C)	ALL PATTERN DATA DUMP REQUEST 1CH
1111 0111 (F7)	EOX

When this message is received, the ALL PATTERN DATA DUMP(Function:4Ch) message will be transmitted.

## (3) CURRENT SONG DATA DUMP REQUEST R

Byte	Description
F0,42,3c,52	EXCLUSIVE HEADER
0000 1010 (0A)	CURRENT SONG DATA DUMP REQUEST 0AH
1111 0111 (F7)	EOX

When this message is received, the CURRENT SONG DATA DUMP (Function:58h) message will be transmitted.

## (4) ALL SONG DATA DUMP REQUEST R

Byte	Description
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F0,42,3c,52	EXCLUSIVE HEADER	
0000 1011 (0B)	ALL SONG DATA DUMP REQUEST	0BH
1111 0111 (F7)	EOX	

When this message is received, the ALL SONG DATA DUMP(Function:57h) message will be transmitted.

(5) ALL DATA DUMP REQUEST R

Byte	Description	
F0,42,3c,52	EXCLUSIVE HEADER	
0000 1111 (0F)	ALL DATA DUMP REQ	0FH
1111 0111 (F7)	EOX	

When this message is received, the ALL DATA DUMP(Function:50h) message will be transmitted.

(6) PATTERN WRITE REQUEST R

Byte	Description	
F0,42,3c,52	EXCLUSIVE HEADER	
0001 0001 (11)	PATTERN WRITE REQUEST	11H
0000 000b (0b)	Destination Program Number(0:A01~B64,1:C01~D64)	
0ppp pppp (pp)	Destination Program Number	
1111 0111 (F7)	EOX	

When this message is received, a WRITE COMPLETED(Function:21h) message or a WRITE ERROR(Function:22h) message will be transmitted.

(7) SONG WRITE REQUEST R

Byte	Description	
F0,42,3c,52	EXCLUSIVE HEADER	
0001 1010 (1A)	SONG WRITE REQUEST	1AH
0000 ssss (0s)	Destination Song No(0~15)	
1111 0111 (F7)	EOX	

When this message is received, a WRITE COMPLETED(Function:21h) message or a WRITE ERROR(Function:22h) message will be transmitted.

(8) CURRENT PATTERN DATA DUMP R/T

Byte	Description	
F0,42,3c,52	EXCLUSIVE HEADER	
0100 0000 (40)	CURRENT PROGRAM DATA DUMP	40H
0ddd dddd (dd)	Data	[NOTE2][TABLE2]
:	:	
1111 0111 (F7)	EOX	

When this message is received, a DATA LOAD COMPLETED(Function:23h) message or a DATA LOAD ERROR(Function:24h) message will be transmitted.

(9) ALL PATTERN DATA DUMP R/T

Byte	Description	
F0,42,3c,52	EXCLUSIVE HEADER	
0100 1100 (4C)	PROGRAM DATA DUMP	4CH
0ddd dddd (dd)	Data	[NOTE2][TABLE2]
:	:	
1111 0111 (F7)	EOX	

When this message is received, a DATA LOAD COMPLETED(Function:23h) message or a DATA LOAD ERROR(Function:24h) message will be transmitted.

## (10) CURRENT SONG DATA DUMP

R/T

Byte	Description	
F0,42,3c,52	EXCLUSIVE HEADER	
0101 1000 (58)	CURRENT SONG DATA DUMP	58H
0ddd dddd (dd)	Data	[NOTE2][TABLE4]
:	:	
1111 0111 (F7)	EOX	

When this message is received, a DATA LOAD COMPLETED(Function:23h) message or a DATA LOAD ERROR(Function:24h) message will be transmitted.

## (11) ALL SONG DATA DUMP

R/T

Byte	Description	
F0,42,3c,52	EXCLUSIVE HEADER	
0101 0111 (57)	ALL SONG DATA DUMP	57H
0ddd dddd (dd)	Data	[NOTE2][TABLE5]
:	:	
1111 0111 (F7)	EOX	

When this message is received, a DATA LOAD COMPLETED(Function:23h) message or a DATA LOAD ERROR(Function:24h) message will be transmitted.

## (12) ALL DATA DUMP

R/T

Byte	Description	
F0,42,3c,52	EXCLUSIVE HEADER	
0101 0000 (50)	ALL DATA DUMP	50H
0ddd dddd (dd)	Data	[NOTE2][TABLE8]
:	:	
1111 0111 (F7)	EOX	

When this message is received, a DATA LOAD COMPLETED(Function:23h) message or a DATA LOAD ERROR(Function:24h) message will be transmitted.  
The data are combined in the order that Program, Multi, Pattern and Global/MIDI.

## (13) DATA FORMAT ERROR

T

Byte	Description	
F0,42,3c,52	EXCLUSIVE HEADER	
0010 0110 (26)	DATA FORMAT ERROR	26H
1111 0111 (F7)	EOX	

## (14) DATA LOAD COMPLETED

T

Byte	Description	
F0,42,3c,52	EXCLUSIVE HEADER	
0010 0011 (23)	DATA LOAD COMPLETED	23H
1111 0111 (F7)	EOX	

## (15) DATA LOAD ERROR

T

Byte	Description	
F0,42,3c,52	EXCLUSIVE HEADER	
0010 0100 (24)	DATA LOAD ERROR	24H

1111 0111 (F7)   EOX	
-----	-----

## (16) WRITE COMPLETED

T

Byte	Description	
F0,42,3c,52	EXCLUSIVE HEADER	
0010 0001 (21)	WRITE COMPLETED	21H
1111 0111 (F7)	EOX	

## (17) WRITE ERROR

T

Byte	Description	
F0,42,3c,52	EXCLUSIVE HEADER	
0010 0010 (22)	WRITE ERROR	22H
1111 0111 (F7)	EOX	

## NOTE1 : Pattern number

mm,bb,pp = 00,00,00~3F : A01~64  
 00,00,40~7F : B01~64  
 00,01,00~3F : C01~64  
 00,01,40~7F : D01~64

## NOTE2 : The dump data conversion

DATA ( 1set = 8bit x 7Byte )

b7	~	b0	b7	~	b0	b7	~	b0	b7	~	b0
+	+	+	+	+	+	+	+	+	+	+	+
+	+	+	+	+	+	+	+	+	+	+	+
7n+0			7n+1			7n+2	~	7n+5	7n+6		

MIDI DATA ( 1set = 7bit x 8Byte )

b7b7b7b7b7b7b7	b6	~	b0	b6	~	b0	b6	~	b0
+	+	+	+	+	+	+	+	+	+
0				0			0		
+	+	+	+	+	+	+	+	+	+
7n+6,5,4,3,2,1,0			7n+0			7n+1	~	7n+5	7n+6

TABLE1 : NON REGISTERED PARAMETER NUMBER (NRPN)

MOTION SEQUENCE/SONG EVENT DESTINATION PARAMETER NUMBER

nm	nl	Parameter	dd (Data Entry(MSB) Value) (Decimal)	ds
[H]	[H]			[H]
03	00	Part1 Portamento	0~127	00
03	01	Part1 Osc Balance	0~127	01
03	02	Part1 Osc2 Pitch	0~127	02
03	03	Part1 Osc1 Wave	0~3 : Saw/Square/Tri/AudioIn	03
03	04	Part1 Osc2 Wave	0~2 : Saw/Square/Tri	04
03	05	Part1 Osc Mode	0~3 : Off/Ring/Sync/Deci	05
03	06	Part1 Distortion	0~63/64~127 : Off/On	06
03	07	Part1 Distortion Level	0~127	07
03	08	Part1 Cutoff	0~127	08
03	09	Part1 Resonance	0~127	09
03	0A	Part1 EG Int	0~127	0A
03	0B	Part1 EG Decay	0~127	0B
03	0C	Part1 Delay Depth	0~127	0C
03	0D	Part1 Delay Time	0~127	0D
03	0E	Part1 Chorus Depth	0~127	0E
03	0E	Part1 Chorus Depth	0~127	0E
03	0F	Part1 Chorus Time	0~127	0F
03	10	Part1 Motion Seq. Type	0~2 : Off/Smooth/TrigHold	
03	20	Part2 Portament	0~127	10
03	21	Part2 Osc Balance	0~127	11
03	22	Part2 Osc2 Pitch	0~127	12
03	23	Part2 Osc1 Wave	0~3 : Saw/Square/Tri/AudioIn	13

03	24	Part2 Osc2 Wave	0~2 : Saw/Square/Tri	14
03	25	Part2 Osc Mode	0~3 : Off/Ring/Sync/Deci	15
03	26	Part2 Distortion	0~63/64~127 : Off/On	16
03	27	Part2 Distortion Level	0~127	17
03	28	Part2 Cutoff	0~127	18
03	29	Part2 Resonance	0~127	19
03	2A	Part2 EG Int	0~127	1A
03	2B	Part2 EG Decay	0~127	1B
03	2C	Part2 Delay Depth	0~127	1C
03	2D	Part2 Delay Time	0~127	1D
03	2E	Part2 Chorus Depth	0~127	1E
03	2F	Part2 Chorus Time	0~127	1F
03	30	Part2 Motion Seq. Type	0~2 : Off/Smooth/TrigHold	
03	41	Output Gain	0~100	41
		Tempo	(song event only)	44

TABLE2 : PATTERN PARAMETERS

0	Tempo (MSB)	20~300	
1	Tempo (LSB)		
2	b5,4 : Scale/Beat	0~2 : 16th note, 32nd note, triplet	
	b1,0 : Pattern Length	0~3 : 1~4	
3	b7~2 : Swing	0~25 : 50~75%	
4~211	Part 1 Parameters	(208bytes)	[TABLE3]
212~419	Part 2 Parameters	(208bytes)	[TABLE3]

TABLE3 : PART PARAMETERS

0	Portament	0~127	
1	Osc1 Wave	0~3 : Saw/Squ/Tri/AudioIn	
2	b3,2 : Osc Mode	0~3 : Off/Ring/Sync/Deci	
	b1,0 : Osc2 Wave	0~2 : Saw/Square/Triangle	
3	Osc2 Pitch Offset	0~127	
4	Osc Balance	0~127	
5	Cutoff	0~127	
6	Resonance	0~127	
7	EG Int	0~127	
8	EG Decay	0~127	
9	b7 : Distortion	0,1 : Off/On	
	b6~0 : Level	0~127	
10	Delay Depth	0~127	
11	Delay Time	0~127	
12	Chorus Depth	0~127	
13	Chorus Time	0~127	
Step Sequence Data			
14	Note Number (Step1)	0~127 (MSB="1" : Off)	
:	:		
77	Note Number (Step64)		
78	Gate Time (Step1)	0~255 : 0.25~64.0 (Scale/Beat=0,1)	

141	Gate Time (Step64)	0~191 : 0.25~48.0 (Scale/Beat=2)
Motion Sequence Data		
142 : 205	value (Step1) : value (Step64)	0~127 (MSB="1" : Off)
206	Type	0~2 : Off/Smooth/TrigHold
207	Destination (ds)	[TABLE1]

TABLE4 : CURRENT SONG PARAMETER

0~517	Song Parameters	(518bytes)	[TABLE6]
Song Event Data			
518~521 522~525 : 262518 ~262521 (max)	Event Data (1st) Event Data (2nd) : Event Data (65500th(max))		[TABLE7]

TABLE5 : ALL SONG EVENT DATA

0~ 517	Song 1 parameter	(518bytes)	[TABLE6]
518~1035	Song 2 parameter	(518bytes)	[TABLE6]
1036~1553	Song 3 parameter	(518bytes)	[TABLE6]
1554~2071	Song 4 parameter	(518bytes)	[TABLE6]
2072~2589	Song 5 parameter	(518bytes)	[TABLE6]
2590~3107	Song 6 parameter	(518bytes)	[TABLE6]
3108~3625	Song 7 parameter	(518bytes)	[TABLE6]
3626~4143	Song 8 parameter	(518bytes)	[TABLE6]
4144~4661	Song 9 parameter	(518bytes)	[TABLE6]
4662~5179	Song 10 parameter	(518bytes)	[TABLE6]
5180~5697	Song 11 parameter	(518bytes)	[TABLE6]
5698~6215	Song 12 parameter	(518bytes)	[TABLE6]
6216~6733	Song 13 parameter	(518bytes)	[TABLE6]
6734~7251	Song 14 parameter	(518bytes)	[TABLE6]
7252~7769	Song 15 parameter	(518bytes)	[TABLE6]
7770~8287	Song 16 parameter	(518bytes)	[TABLE6]
Song Event Data (Event Size is total number of event of All Songs.)			
8288~8291 8292~8295 : 270284 ~270287 (max)	event data (1st) event data (2nd) : event data (65500th(max))		[TABLE7]

TABLE6 : SONG PARAMETERS



0	Tempo (MSB)	20~300
1	Tempo (LSB)	
2	step end data	0~255=1stPosition~256thPosition
3	(dummy)	
4	number of event (MSB)	0~65500
5	number of event (LSB)	
Position Data		
6	Pattern Number (1st)	0~255 = A01 ~ D64
:	:	
261	Pattern Number (256th)	
262	Note Offset (1st)	-24~24
:	:	
517	Note Offset (256th)	

TABLE7 : SONG EVENT DATA

0	Position Number	0~255
b7	Enable Data	0/1 : Enable/Disable
1	b5,4 Measure Number	0~3 : 1~4
b3~0	Step Number	0~15 : 1~16
b6	if "Control/Note" is Control	
	if "Destination" is Tempo	
	Tempo MSB (b8)	*1
	if "Destination" is not Tempo	
	not use	
	if "Control/Note" is Note	
	if "Tie to Next Meas" is not TieTo	
	length (tick count LSB)	*2
	if "Tie to Next Meas" is TieTo	
	not use	
2	b7 Control/Note	0/1 : Control / Note
b6~0	if "Control/Note" is Control	
	Destination (ds)	[TABLE1]
	if "Control/Note" is Note	
	Note Number	0~127
3	if "Control/Note" is Control	
b7~0	if "Destination" is Tempo	
	Tempo Value (b7~0)	20~300(with Tempo MSB b8 *1)
	if "Destination" is not Tempo	
	Value	0~127
	if "Control/Note" is Note	
b7	part select	0/1 : part1/2

b6	Tie to next Meas flag	1 = TieTo (tie to next measure)
if "Tie to Next Meas" is TieTo		
b5~0	not used	
if "Tie to Next Meas" is not TieTo		
b5~2	length (step count)	0~15
b1~0	length (tick count 2MSB)	0~7(with tick count LSB *2)

TABLE8 : ALL DATA

0~127	Global Parameters	[TABLE9]
128 ~107647	All Pattern Parameters	[TABLE2]
107648 ~377933 (max)	All Song Parameters	[TABLE5]

TABLE9 : GLOBAL PARAMETERS

0,1	dummy	
2	Metronome	0~4 : Off/r-0/r-1/r-2/On
3,4	dummy	
5	Input Gain	0~100
6	Pitch Bend Range	0~12~24 : -12~0~12
7~14	dummy	
15	Clock	0/1 : Int/Ext
16~63	dummy	
64~127	Pattern Set Parameters	0~255 : A01~D64